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(54) **DRONE-BASED PAINTING SYSTEM**

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(57) **ABSTRACT**

A painting system that makes use of drones such as modified quadrotors. The drone includes a support arm that carries a paint nozzle configured for pan and tilt motion. A power supply line is connected from an external power supply to the drone to allow extended flight time. A paint supply line is also connected from an external paint supply to the drone to allow extended painting time and/or surface coverage with each flight. The drone has an onboard controller so painting is autonomous with no human input being required. The drone stores a 3D model of the target structure annotated with the drone trajectory plus commands to control the pan-tilt paint nozzle to perform the painting. At runtime, the controller uses a sensor to view the target structure and localizes itself. The drone then traverses the stored trajectory and implements the painting commands to paint the 3D structure's surfaces.